

LAHIVE

&

COCKFIELD

L L P

COUNSELLORS AT LAW
28 STATE STREET

BOSTON, MASSACHUSETTS 02109-1784

TELEPHONE (617) 227-7400

FAX (617) 742-4214

lc@lahcoc.com

JOHN A. LAHIVE, JR. (1928-1997)
 THOMAS V. SMURZYNSKI
 RALPH A. LOREN
 GIULIO A. DeCONTI, JR.
 ANN LAMPORT HAMMITTE
 ELIZABETH A. HANLEY
 AMY BAKER MANDRAGOURAS
 ANTHONY A. LAURENTANO
 KEVIN J. CANNING
 JANE E. REMILLARD
 JEANNE M. DIGIORGIO
 DEBRA J. MILASINCIC, Ph.D.
 NICHOLAS P. TRIANO, III
 CHI SUK KIM
 DAVID J. RIKKERS
 DAVID R. BURNS
 JOHN S. CURRAN

SEAN D. DETWEILER
 ADAM M. GOODMAN
 CYNTHIA L. KANIK, Ph.D.
 MEGAN E. WILLIAMS, Ph.D.
 RICHA NAND

SENIOR COUNSEL
 JAMES E. COCKFIELD

OF COUNSEL
 JEREMIAH LYNCH
 WILLIAM A. SCOFIELD, JR.
 PETER C. LAURO *
 DeANN FORAN SMITH**

PATENT AGENTS
 PETER S. STECHER

TECHNICAL SPECIALISTS
 MARIA LACCOTRIPE ZACHARAKIS, Ph.D.
 CYNTHIA M. SOROOS
 PETER W. DINI, Ph.D.
 EUIHOON LEE
 LISA M. DIROCCO
 JENNIFER K. ROSENFELD
 JUDITH STONE-HULSLANDER, Ph.D.
 ALLAN TAMESHTIT, Ph.D.
 CATHERINE E. McPHERSON
 ERIC F. WAGNER, Ph.D.
 SHAHID HASAN, Ph.D.
 ASHITA DOSHI, Ph.D.
 JACOB G. WEINTRAUB

* Admitted in NY only
 ** Admitted in MI only
 *** Passed the Patent Bar Examination

March 9, 2001

Commissioner for Patents
 Washington, D.C. 20231

Re: U.S. Patent Application No.: 09/581,861
*YEAST CELLS EXPRESSING MODIFIED G PROTEINS AND METHODS OF
 USE THEREFOR*
 Inventors: James R. Broach, *et al.*
 Filed: June 19, 2000
 Our Ref. No.: CPI-012C8US

Dear Sir:

I enclose herewith for filing in the above-identified application the following:

1. Information Disclosure Statement (in duplicate);
2. PTO Form 1449;
3. Full copies of references cited in PTO Form 1449 (except reference K1);
4. A copy of the International Search Report;
5. A copy of the International Preliminary Examination Report; and
6. A Return Postcard.

No additional costs are believed to be due in connection with the filing of this Information Disclosure Statement. However, please charge any necessary fees in connection with the enclosed statement to our Deposit Order Account No. 12-0080. For this purpose, a duplicate of this sheet is attached.

I hereby certify that this correspondence is deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231 on:

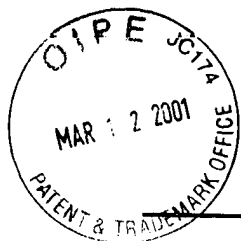
March 9, 2001

Date

Peter C. Lauro, Esq., Reg. No. 32,360

Respectfully submitted,
 LAHIVE & COCKFIELD, LLP

Peter C. Lauro, Esq.
 Registration No. 32,360
 Attorney for Applicants



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: James R. Broach, *et al.*

Serial No.: 09/581,861

Filed: June 19, 2000

For: *YEAST CELLS EXPRESSING MODIFIED G
PROTEINS AND METHODS OF USE THEREFOR*

Attorney Docket No.: CPI-012C8US

Group Art Unit: Not Yet Assigned

Examiner: Not Yet Assigned

Commissioner for Patents
Washington, D.C. 20231

Certificate of First Class Mailing (37 CFR §1.8(a))

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231 on the date set forth below.

March 9, 2001

Date of Signature and of Mail Deposit

By:

Peter C. Lauro, Esq.
Registration No. 32,360
Attorney for Applicants

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

Applicants and their attorney are aware of the following publications and information, listed on the attached PTO Form 1449, and in accordance with 37 CFR §1.97 hereby submit these publications for the Examiner's consideration. Applicants invite the Examiner's attention to the fact that references A6, C4-C7 and F1 listed on the attached PTO Form 1449 were cited in the International Search Report issued in corresponding International patent application PCT/US98/21168. In addition, reference K1 listed on the attached PTO Form 1449 was cited in the International Preliminary Examination Report issued in corresponding International patent application PCT/US98/21168.

Copies of the aforementioned International Search Report and the International Preliminary Examination Report are enclosed herewith. Inasmuch as the foregoing publication K1 has previously been transmitted to all the designated Offices, including the U.S. Patent and Trademark Office, a copy of this publication is not enclosed herewith. However, full copies of all the remaining publications listed on the attached Form PTO 1449 are enclosed herewith.

This statement is not to be interpreted as a representation that the cited publications are material, that an exhaustive search has been conducted, or that no other relevant information exists. Nor shall the citation of any publication herein be construed *per se* as a representation that such publication is prior art. Moreover, Applicants understand that the Examiner will make an independent evaluation of the cited publications.

Pursuant to 37 CFR § 1.97(b)(3), no additional costs are believed to be due in connection with the filing of this disclosure. If, however, a first Office Action on the merits issues in this application bearing a mailing date prior to the date of this Information Disclosure Statement, please charge the appropriate fee as required under 37 CFR §1.17(p) to our Deposit Order Account No. 12-0080. A duplicate of this document is enclosed.

Respectfully submitted,

LAHIVE & COCKFIELD, LLP

A handwritten signature in cursive script, appearing to read "Peter C. Lauro", is written over a horizontal line.

Peter C. Lauro, Esq.

Registration No. 32,360

Attorney for Applicants

28 State Street
Boston, MA 02109
(617) 227-7400

Date: March 9, 2001

GAD/PCL/JSH/mlh
Enclosures

APPLICANT FACSIMILE OF FORM PTO-1449

REV 7-80

U.S. DEPARTMENT OF
COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO

SERIAL NO.

CPI-012C8US

09/581,861

LIST OF PUBLICATIONS CITED BY APPLICANT
(Use several sheets if necessary)APPLICANT
James R. Broach et al.FILING DATE
June 19, 2000

GROUP

U.S. PATENT DOCUMENTS

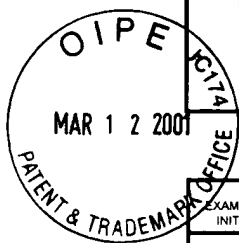
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A1	4,948,874	08/90	Kronvall et al.	350	350	
	A2	5,096,815	03/92	Ladner et al.	435	69.1	
	A3	5,283,173	02/94	Fields et al.	435	6	

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
	A4	WO 88/10308	12/88	PCT				
	A5	WO 91/12273	08/91	PCT				
	A6	WO 92/05244	04/92	PCT				

OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

	A7	Akada, R. et al. "Genetic Relationships Between the G Protein $\beta\gamma$ Complex, Ste5p, Ste20p and Cdc42p: Investigation of Effector Roles in the Yeast Pheromone Response Pathway," <i>Genetics</i> 143:103-117 (1996)
	A8	Alison, Malcolm R. et al. "Growth factors and growth factor receptors," <i>Brit. J. of Hosp. Med.</i> 49(11):774-88 (1993)
	A9	Altieri, Dario C. "Proteases and protease receptors in modulation of leukocyte effector functions," <i>J. of Leukocyte Biol.</i> 58:120-27 (1995)
	A10	Artemyev, Nikolai O. et al. "Sites of Interaction between Rod G-Protein α -Subunit and cGMP-phosphodiesterase γ -Subunit," <i>J. Biol. Chem.</i> 267(35):25067-72 (1992)
	A11	Awramik, S. M. "New fossil finds in old rocks," <i>Nature</i> 319:446-47 (1986)
	A12	Belka, C. et al. "The role of tyrosine kinases and their substrates in signal transmission of hematopoietic growth factors: a short review," <i>Leukemia</i> 9:754-61 (1995)
	A13	Bender, Alan and Sprague, George F. Jr. "Pheromones and Pheromone Receptors Are the Primary Determinants of Mating Specificity in the Yeast <i>Saccharomyces cerevisiae</i> ," <i>Genetics</i> 121:463-76 (1989)
	A14	Birnbaumer, Lutz "Transduction of receptor signal into modulation of effector activity by G proteins: the first 20 years or so..." <i>FASEB Journal</i> 4:3178-88 (1990)
	A15	Blinder, Dmitry et al. "Constitutive Mutants in the Yeast Pheromone Response: Ordered function of the Gene Products," <i>Cell</i> 56:479-486 (1989)
	A16	Brill, Julie A. et al. "A Role for Autophosphorylation Revealed by Activated Alleles of <i>FUS3</i> , the Yeast MAP Kinase Homolog," <i>Molecular Biology of the Cell</i> 5:297-312 (1994)
	A17	Brugarolas, James et al. "Radiation-induced cell cycle arrest compromised by p21 deficiency," <i>Nature</i> 377:522-57 (1995)
	A18	Burack, W. Richard et al. "The Activating Dual Phosphorylation of MAPK by MEK Is Nonprocessive," <i>Biochemistry</i> 36(20):5929-5933 (1997)
Examiner		Date Considered
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.		



APPLICANT FACSIMILE OF FORM PTO-1449

REV 7-80

U.S. DEPARTMENT OF
COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO

SERIAL NO.

CPI-012C8US

09/581,861

APPLICANT

James R. Broach et al.

FILING DATE

June 19, 2000

GROUP

LIST OF PUBLICATIONS CITED BY APPLICANT
(Use several sheets if necessary)

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	B1	5,401,629	03/95	Harpold et al.	435	6	
	B2	5,436,128	07/95	Harpold et al.	435	6	
	B3	5,468,614	11/95	Fields et al.	435	6	

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
	B4	WO 92/08740	05/92	PCT				
	B5	WO 93/10230	05/93	PCT				
	B6	EP 568,925	11/93	EPO				

OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

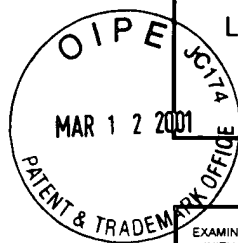
	B7	Cavallini, Bruno et al. "A yeast activity can substitute for the HeLa Cell TATA box factor," <i>Nature</i> 334:77-80 (1988)
	B8	Chambers, D. A. et al. "Neuroimmune Modulation: Signal Transduction and Catecholamines," <i>Neurochem. Int.</i> 22(2):95-110 (1993)
	B9	Chan, Russell K. and Otte, Carol A. "Isolation and Genetic Analysis of <i>Saccharomyces cerevisiae</i> Mutants Supersensitive to G1 Arrest by a Factor and α Factor," <i>Molecular and Cellular Biol.</i> 2(1):11-20 (1982)
	B10	Chang, Fred and Herskowitz, Ira "Identification of a Gene Necessary for Cell Cycle Arrest by a Negative Growth Factor of Yeast: FAR1 is an Inhibitor of a G1 Cyclin, CLN2," <i>Cell</i> 63:999-1011 (1990)
	B11	Chien, Cheng-Ting, et al. "The two-hybrid system: A method to identify and clone genes for proteins that interact with a protein of interest," <i>Proc. Natl. Acad. Sci. USA</i> 88:9578-82 (1991)
	B12	Clark, Karen L. et al. "Interactions among the Subunits of the G-protein Involved in <i>Saccharomyces cerevisiae</i> Mating," <i>Molecular and Cellular Biol.</i> 13(1):1-8 (1993)
	B13	Cole, Gary M. et al. "Stoichiometry of G Protein Subunits Affects the <i>Saccharomyces cerevisiae</i> Mating Pheromone Signal Transduction Pathway," <i>Molecular and Cellular Biology</i> 10(2):510-517 (1990)
	B14	Coleman, David E. et al. "Structures of Active Conformation of $G_{i\alpha 1}$ and the Mechanism of GTP Hydrolysis," <i>Science</i> 265:1405-12 (1994)
	B15	Conklin, Bruce R. et al. "Substitution of three amino acids switches receptor specificity of $G_{q\alpha}$ to that of $G_{i\alpha}$," <i>Nature</i> 363:274-76 (1993)
	B16	Cwirla, Steven E. et al. "Peptides on phage: A vast library of peptides for identifying ligands," <i>Proc. Natl. Acad. Sci. USA</i> 87:6378-82 (1990)
	B17	Devlin, James J. et al. "Random Peptide Libraries: A Source of Specific Protein Binding Molecules," <i>Science</i> 249:404-6 (1990)
	B18	Dietzel, Christine and Kurjan, Janet "The Yeast SCG1 Gene: A $G\alpha$ -like Protein Implicated in the α - and α -Factor Response Pathway," <i>Cell</i> 50:1001-10 (1987)

Examiner

Date Considered

*EXAMINER:

Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



APPLICANT FACSIMILE OF FORM PTO-1449 REV 7-80	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY DOCKET NO CPI-012C8US	SERIAL NO. 09/581,861
LIST OF PUBLICATIONS CITED BY APPLICANT (Use several sheets if necessary)		APPLICANT James R. Broach et al.	
		FILING DATE June 19, 2000	GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	C1	5,482,835	01/96	King et al.	435	6
	C2	5,580,736	12/96	Brent et al.	435	6
	C3	5,691,188	11/97	Pausch et al.	435	225.1

FOREIGN PATENT DOCUMENTS

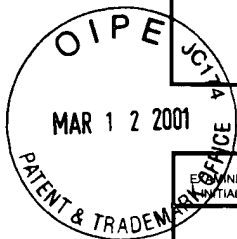
DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
C4	WO 94/23025	10/94	PCT		
C5	WO 95/30012	11/95	PCT		
C6	WO 97/11159	03/97	PCT		
C7	WO 98/13513	04/98	PCT		

OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

C8	Dmochowska, Aleksandra et al. "Yeast <i>KEX1</i> Gene Encodes a Putative Protease with a Carboxypeptidase B-like Function Involved in Killer Toxin and α -Factor Precursor Processing," <i>Cell</i> 50:573-84 (1987)	
C9	Dolan, J. W. et al. "Overproduction of the yeast STE12 protein leads to constitutive transcriptional induction," <i>Genes & Development</i> 4(4):492-502 (1990)	
C10	Dubois, Patrice M. et al. "Role of the transmembrane and cytoplasmic domains of surface IgM in endocytosis and signal transduction," <i>Eur. J. Immunol.</i> 22:851-57 (1992)	
C11	Erickson, Deborah "Intercepted Messages: New biotechnology drugs target intracellular communication," <i>Scientific American</i> 267(5):122-23 (1992)	
C12	Etienne, Gilles et al. "A Screening Method for Antifungal Substances Using <i>Saccharomyces cerevisiae</i> Strains Resistant to Polyene Macrolides," <i>J. of Antibiotics</i> 43(2):199-206 (1990)	
C13	Fasullo, Michael T. and Davis, Ronald W. "Direction of Chromosome Rearrangements in <i>Saccharomyces cerevisiae</i> by Use of <i>his3</i> Recombination Substrates," <i>Molecular and Cellular Biol.</i> 8(10):4370-80 (1988)	
C14	Ferrell, James E. Jr. et al. "The Biochemical Basis of an All-or-None Cell Fate Switch in <i>Xenopus</i> Oocytes," <i>Science</i> 280:895-898 (1998)	
C15	Ferrell, James E. Jr. "Tripping the switch fantastic: how a protein kinase cascade can convert graded inputs into switch-like outputs," <i>Trends In Biochem. Sci.</i> 21(12):460-6 (1996)	
C16	Fields, Stanley and Song Ok-kyu "A novel genetic system to detect protein-protein interactions," <i>Nature</i> 340:245-46 (1989)	
C17	Franke, Arthur E. et al. "Human C5a Anaphylatoxin: Gene Synthesis, Expression, and Recovery of Biologically Active Material from <i>Escherichia coli</i> ," <i>Methods in Enzymology</i> 162:653-68 (1988)	
C18	Funaro, Ana et al. "Human CD38 is associated to distinct molecules which mediate transmembrane signaling in different lineages," <i>Eur. J. Immunol.</i> 23:2407-11 (1993)	
Examiner		Date Considered
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.		



APPLICANT FACSIMILE OF FORM PTO-1449 REV 7-80	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY DOCKET NO CPI-012C8US	SERIAL NO. 09/581,861
LIST OF PUBLICATIONS CITED BY APPLICANT (Use several sheets if necessary)		APPLICANT James R. Broach et al.	
		FILING DATE June 19, 2000	GROUP



U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	D1	5,739,029	04/98	King et al.	435	254.21

FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO

OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

D2	Gallego, Carme et al. "Myristoylation of the G _{α12} polypeptide, a G protein α subunit, is required for its signaling and transformation functions," <i>Proc. Natl. Acad. Sci. USA</i> 89:9695-99 (1992)
D3	Garritsen, Anja et al. "The N-Terminal coiled-coil domain of β is essential for γ association: A Model for G-Protein βγ subunit interaction," <i>Proc. Natl. Acad. Sci. USA</i> 90:7706-10 (1993)
D4	Gerard, Norma P. and Gerard, Craig "Construction and Expression of a Novel Recombinant Anaphylatoxin, C5a-N19, a Probe for the Human C5a Receptor," <i>Biochemistry</i> 29(39):9274-81 (1990)
D5	Gordon, J. "B-cell signaling via the C-type lectins CD23 and CD72," <i>Immunology Today</i> 15(9):411-17 (1994)
D6	Graf, Rolf et al. "A Truncated Recombinant α Subunit of G ₁₃ with a Reduced Affinity for βγ Dimers and Altered Guanosine 5'-3-O-(Thio)triphosphate Binding," <i>J. of Biol. Chem.</i> 267(34):24307-14 (1992)
D7	Gros, Philippe et al. "Mammalian Multidrug Resistance Gene: Complete cDNA Sequence Indicates Strong Homology to Bacterial Transport Proteins," <i>Cell</i> 47:371-80 (1986)
D8	Gyuris, Jenő et al. "Cdk1, A Human G1 and S Phase Protein Phosphatase That Associates with Cdk2," <i>Cell</i> 75:791-803 (1993)
D9	Hagen, David C. et al. "Evidence the yeast <i>STE3</i> gene encodes a receptor for the peptide pheromone a factor: Gene sequence and implications for the structure of the presumed receptor," <i>Proc. Natl. Acad. Sci. USA</i> 83:1418-22 (1986)
D10	Hall, Marcia et al. "Evidence for different modes of action of cyclin-dependent kinase inhibitors: p15 and p16 bind to kinases, p21 and p27 bind to cyclins," <i>Oncogene</i> 11:1581-88 (1995)
D11	Harbury, Pehr B. et al. "A Switch Between Two-, Three- and Four-Stranded Coiled Coils in GCN4 Leucine Zipper Mutants," <i>Science</i> 262:1401-07 (1993)
D12	Hartwell, Leland H. "Mutants of <i>Saccharomyces cerevisiae</i> Unresponsive to Cell Division Control by Polypeptide Mating Hormone," <i>J. Cell Biol.</i> 85:811-22 (1980)
D13	Hasson, M.S. et al. "Mutational Activation of the <i>STE5</i> Gene Product Bypasses the Requirement for G Protein β and γ Subunits in the Yeast Pheromone Response Pathway," <i>Molecular and Cellular Biology</i> 14(2):1054-1065 (1994)
D14	He, Bin et al. "RAM2, an essential gene of yeast, and RAM1 encode the two polypeptide components of the farnesyltransferase that prenylates a-actor and Ras proteins," <i>Proc. Natl. Acad. Sci. USA</i> 88:11373-77 (1991)
Examiner	
Date Considered	
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

APPLICANT FACSIMILE OF FORM PTO-1449

REV 7-80

U.S. DEPARTMENT OF
COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO

SERIAL NO.

CPI-012C8US

09/581,861

APPLICANT

James R. Broach et al.

FILING DATE

June 19, 2000

GROUP

LIST OF PUBLICATIONS CITED BY APPLICANT
(Use several sheets if necessary)

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO

OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

E1	Hiltunen, J. Kalervo et al. "Peroxisomal Multifunctional β -Oxidation Protein of <i>Saccharomyces cerevisiae</i> ," <i>J. of Biol. Chem.</i> 267(10):6646-6653 (1992)
E2	Hrycyna, Christine A. et al. "The <i>Saccharomyces cerevisiae</i> STE14 gene encodes a methyltransferase that mediates C-terminal methylation of a-factor and RAS Proteins," <i>The EMBO J.</i> 10(1):1699-1709 (1991)
E3	Huang, Chi-Ying F. et al. "Ultrasensitivity in the mitogen-activated protein kinase cascade," <i>Proc. Natl. Acad. Sci. USA</i> 93:10078-10083 (1996)
E4	Huang, H.J. et al "Functional Expression of Rat M5 Muscarinic Acetylcholine Receptor in Yeast" <i>Biochem. Biophys. Res. Commun.</i> 182(3):1180-86 (Feb. 14, 1992)
E5	Hughes, David A. et al. "Complementation of <i>byr1</i> in fission yeast by mammalian MAP kinase kinase requires coexpression of Raf kinase," <i>Nature</i> 364:349-52 (1993)
E6	Imamoto, Akira et al. "Genetics of signal transduction: tales from the mouse," <i>Curr. Opin. Gen. & Dev.</i> 4:40-46 (1994)
E7	Inouye, Carla et al. "Ste5 RING-H2 Domain: Role in Ste4-Promoted Oligomerization for Yeast Pheromone Signaling," <i>Science</i> 278:103-106 (1997)
E8	Jabbar, M. Abdul et al. "Influenza Viral (AWSN/33) hemagglutinin is expressed and glycosylated in the yeast <i>Saccharomyces cerevisiae</i> ," <i>Proc. Natl. Acad. Sci. USA</i> 82:2019-23 (1985)
E9	Jakobs, K. H. et al. "Dual regulation of adenylate cyclase. A signal transduction mechanism of membrane receptors," <i>Basic Res. Cardiol.</i> 81:1-9 (1986)
E10	Journot, Laurent et al. "Amino Acids 367-376 of the G_s α subunit induce membrane association when fused to soluble amino-terminal deleted G_{11} α subunit," <i>Proc. Natl. Acad. Sci. USA</i> 88:10054-58 (1991)
E11	Julius, David et al. "Glycosylation and Processing of Prepro- α -Factor through the Yeast Secretory Pathway," <i>Cell</i> 36:309-18 (1984)
E12	Julius, David et al. "Isolation of the Putative Structural Gene for the Lysine-Arginine-Cleaving Endopeptidase Required for Processing of Yeast Prepro- α -factor," <i>Cell</i> 37:1075-89 (1984)
E13	Julius, David et al. "Yeast α Factor is Processed from a Larger Precursor Polypeptide: The Essential Role of a Membrane-Bound Dipeptidyl Aminopeptidase," <i>Cell</i> 32:839-52 (1983)
E14	Kaiser, Chris A. et al. "Many Random Sequences Functionally Replace the Secretion Signal Sequence of Yeast Invertase," <i>Science</i> 235:312-17 (1987)

Examiner

Date Considered

*EXAMINER:

Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



APPLICANT FACSIMILE OF FORM PTO-1449
REV 7-80

U.S. DEPARTMENT OF
COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO

SERIAL NO.

CPI-012C8US

09/581,861

LIST OF PUBLICATIONS CITED BY APPLICANT
(Use several sheets if necessary)

APPLICANT
James R. Broach et al.

FILING DATE

June 19, 2000

GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO

OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

F1	Kang, Yoon-Se et al. "Effects of expression of mammalian G α and hybrid mammalian-yeast G α proteins on the yeast pheromone response signal transduction pathway," <i>Molecular and Cellular Biology</i> 10(6):2582-90 (1990)
F2	King, Klim et al. "Control of Yeast Mating Signal Transduction by a Mammalian β_2 -Adrenergic Receptor and G α_s α Subunit," <i>Science</i> 250:121-23 (1990)
F3	Kingsman, S.M. et al. "The production of mammalian protein in <i>Saccharomyces cerevisiae</i> ," <i>Tibtech</i> 5:53-57 (1987)
F4	Koff, Andrew et al. "Human Cyclin E, a New Cyclin That Interacts with Two Members of the CDC2 Gene Family," <i>Cell</i> 66:1217-28 (1991)
F5	Kosugi, Shinji et al. "Characterization of heterogeneous mutations causing constitutive activation of the luteinizing hormone receptor in familial male precocious puberty," <i>Human Molecular Genetics</i> 4(2):183-88 (1995)
F6	Kramer, R. A. et al. "HTLV-III gag Protein Is Processed in Yeast Cells by the Virus pol-Protease," <i>Science</i> 231:1580-85 (1986)
F7	Kuchler, Karl and Thorner, Jeremy "Functional expression of human <i>mdr1</i> in the yeast <i>Saccharomyces cerevisiae</i> ," <i>Proc. Natl. Acad. Sci. USA</i> 89:2302-06 (1992)
F8	Kuchler, Karl et al. " <i>Saccharomyces cerevisiae</i> STE6 gene product: a novel pathway for protein export in eukaryotic cells," <i>The EMBO J.</i> 8(13):3973-84 (1989)
F9	Kurjan, Janet "a-Factor Structural Gene Mutations in <i>Saccharomyces cerevisiae</i> : Effects on a-Factor Production and Mating," <i>Molecular and Cellular Biol.</i> 5(4):787-96 (1985)
F10	Kurjan, Janet and Herskowitz "Structure of a Yeast Pheromone Gene (<i>MFA</i>): A Putative a-Factor Precursor Contains Four Random Copies of Mature a-Factor," <i>Cell</i> 30:933-43 (1982)
F11	Lambright, David G. et al. "Structural determinants for activation of the a-subunit of a heterotrimeric G protein," <i>Nature</i> 369:621-28 (1994)
F12	Leberer, Ekkehard et al. "Dominant-negative mutants of a yeast G-protein β subunit identify two functional regions involved in pheromone signaling," <i>The EMBO J.</i> 11(13):4805-13 (1992)
F13	Lee, Ethan et al. "The G22A Mutant of G α_s Highlights the Requirement for Dissociation of G Protein Subunits," <i>J. Biol. Chem.</i> 267(2):1212-18 (1992)
F14	Lemire, Bernard D. et al. "The Mitochondrial Targeting Function of Randomly Generated Peptide Sequences Correlates with Predicted Helical Amphiphilicity," <i>J. Biol. Chem.</i> 264(34):20206-12 (1989)

Examiner

Date Considered

*EXAMINER:

Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



APPLICANT FACSIMILE OF FORM PTO-1449

REV 7-80

U.S. DEPARTMENT OF
COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO

SERIAL NO.

CPI-012C8US

09/581,861

LIST OF PUBLICATIONS CITED BY APPLICANT
(Use several sheets if necessary)APPLICANT
James R. Broach et al.FILING DATE
June 19, 2000

GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO

OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

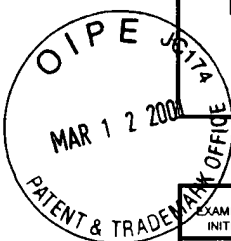
G1	Lew, Daniel J. et al. "Isolation of Three Novel Human Cyclins by Rescue of G1 Cyclin (Cln) Function in Yeast," <i>Cell</i> 66:1197-1206 (1991)
G2	Linder, Maurine E. and Gilman, Alfred G. "G Proteins," <i>Scientific American</i> 267(1):56-65 (1992)
G3	Linder, Maurine E. et al. "Lipid Modifications of G Protein Subunits: Myristoylation of G ₀ Increases its Affinity for $\beta\gamma$," <i>J. Biol. Chem.</i> 266(7):4654-59 (1991)
G4	Lupas, Andrei N. et al. "Do G protein subunits associate via a three-stranded coiled coil?" <i>FEBS</i> 314(2):105-08 (1992)
G5	Mackay, Vivian and Manney, Thomas R. "Mutations Affecting Sexual Conjugation and Related Processes in <i>Saccharomyces cerevisiae</i> . II Genetic Analysis of Nonmating Mutants," <i>Genetics</i> 76:273-88 (1974)
G6	Marengere, Luc E.M. and Pawson, Tony "Structure and function of SH2 domains," <i>J. Cell Science Suppl.</i> 18:97-104 (1994)
G7	Markby, David W. et al. "Separate GTP Binding and GTPase Activating Domains of a G α Subunit," <i>Science</i> 262:1895-1901 (1993)
G8	Michaelis, Susan and Herskowitz, Ira "The α -Factor Pheromone of <i>Saccharomyces cerevisiae</i> is Essential for Mating," <i>Molecular and Cellular Biol.</i> 8(3):1309-18 (1988)
G9	Milano, C.A. et al. "Enhanced Myocardial Function in Transgenic Mice Overexpressing the β_2 -Adrenergic Receptor," <i>Science</i> 264:582-86 (1994)
G10	Milburn, Michael V. et al. "Molecular Switch for Signal Transduction: Structural Differences Between Active and Inactive Forms of Protooncogenic <i>ras</i> Proteins," <i>Science</i> 247:939-45 (1990)
G11	Mumby, Susanne M. et al. "G-Protein α -subunit expression, myristoylation, and membrane association in COS cells," <i>Proc. Natl. Acad. Sci. USA</i> 87:728-32 (1990)
G12	Murphy, A.J.M. et al. "Autocrine Stimulation of Yeast through Human G-Coupled Receptors," <i>J. Cell Biochem.</i> 18B:224 (1994)
G13	Nakafuku, Masato et al. "Occurrence in <i>Saccharomyces cerevisiae</i> of a gene homologous to the cDNA coding for the α -subunit of mammalian G proteins," <i>Proc. Natl. Acad. Sci. USA</i> 84:2140-44 (1987)
G14	Nakayama, N. et al. "Common signal transduction system shared by <i>STE2</i> and <i>STE3</i> in haploid cells of <i>Saccharomyces cerevisiae</i> : autocrine cell-cycle arrest results from forced expression of <i>STE2</i> ," <i>The EMBO J.</i> 6(1):249-54 (1987)

Examiner

Date Considered

*EXAMINER:

Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



APPLICANT FACSIMILE OF FORM PTO-1449 REV 7-80	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY DOCKET NO CPI-012C8US	SERIAL NO. 09/581,861
LIST OF PUBLICATIONS CITED BY APPLICANT (Use several sheets if necessary)		APPLICANT James R. Broach et al.	
		FILING DATE June 19, 2000	GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

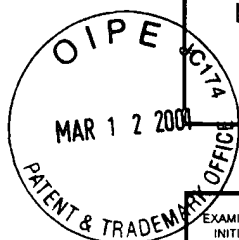
DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO

OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

H1	Neer, Eva J. et al. "The Amino Terminus of a G Protein α Subunits Is Required for Interaction with $\beta\gamma$," <i>J. Biol. Chem.</i> 263(18):8996-9000 (1988)
H2	Noel, Joseph P. et al. "The 2.2 Å crystal structure of transducin- α complexed with GTP- γ -S," <i>Nature</i> 366:654-63 (1993)
H3	Noelle, Randolph J. et al. "CD40 and its ligand, an essential ligand-receptor pair for thymus-dependent B-cell activation," <i>Immunol. Today</i> 13(11):431-33 (1992)
H4	Nomoto, Satoshi et al. "Regulation of the yeast pheromone response pathway by G protein subunits," <i>The EMBO J.</i> 9(3):691-696 (1990)
H5	Nye, Jeffrey S. and Kopan, Raphael "Vertebrate ligands for Notch," <i>Current Biology</i> 5(9):966-69 (1995)
H6	Oeda, Kenji et al. "Expression of Rat Liver Cytochrome P-450MC cDNA in <i>Saccharomyces cerevisiae</i> ," <i>DNA</i> 4(3):203-10 (1985)
H7	Ogden, Jill E. et al. "Efficient Expression of the <i>Saccharomyces cerevisiae</i> PGK Gene Depends on an Upstream Activation Sequence but Does Not Require TATA Sequences," <i>Molecular and Cellular Biol.</i> 6(12):4335-43 (1986)
H8	Pronin, Alexey N. and Gautam, Narasimhan "Interaction between G-Protein β and γ subunit types is selective," <i>Proc. Natl. Acad. Sci. USA</i> 89:6220-24 (1992)
H9	Ramer, Sandra W. and Davis, Ronald W. "A dominant truncation allele identifies a gene, <i>STE20</i> , that encodes a putative protein kinase necessary for mating in <i>Saccharomyces cerevisiae</i> ," <i>Proc. Natl. Acad. Sci. USA</i> 90:452-456 (1993)
H10	Ranade, Koustubh et al. "Mutations associated with familial melanoma impair p16 ^{INK4} function," <i>Nature Genetics</i> 10:114-16 (1995)
H11	Rarick, Helen M. et al. "A Site on Rod G Protein α Subunit That Mediates Effector Activation," <i>Science</i> 256:1031-33 (1992)
H12	Raymond, Martine et al. "Functional Complementation of Yeast <i>ste6</i> by a Mammalian Multidrug Resistance <i>mdr</i> Gene," <i>Science</i> 256:232-34 (1992)
H13	Reed, Randall R. "G Protein Diversity and the Regulation of Signaling Pathways," <i>The New Biologist</i> 2(11):957-60 (1990)
H14	Schafer, William R. et al. "Enzymatic Coupling of Cholesterol Intermediates to a Mating Pheromone Precursor and to the Ras Protein," <i>Science</i> 249:1133-39 (1990)
H15	Schafer, William R. et al. "Genetic and Pharmacological Suppression of Oncogenic Mutations in <i>RAS</i> Genes of Yeast and Humans," <i>Science</i> 245:379-85 (1989)

Examiner	Date Considered
----------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



APPLICANT FACSIMILE OF FORM PTO-1449 REV 7-80	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY DOCKET NO CPI-012C8US	SERIAL NO. 09/581,861
LIST OF PUBLICATIONS CITED BY APPLICANT (Use several sheets if necessary)		APPLICANT James R. Broach et al.	
		FILING DATE June 19, 2000	GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

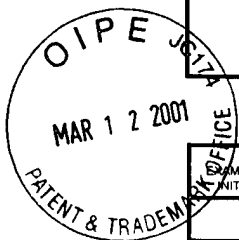
FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO

OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

11	Schärer, E. and Iggo, R. "Mammalian p53 can function as a transcription factor in yeast," <i>Nucleic Acids Research</i> 20(7):1539-45 (1992)
12	Scott, Jamie K. and Smith, George P. "Searching for Peptide Ligands with an Epitope Library," <i>Science</i> 249:386-90 (1990)
13	Sikorski, Robert S. and Hieter, Philip "A System of Shuttle Vectors and Yeast Host Strains Designed for Efficient Manipulation of DNA in <i>Saccharomyces cerevisiae</i> ," <i>Genetics</i> 122:19-27 (1989)
14	Singh, Arjun et al. " <i>Saccharomyces cerevisiae</i> contains two discrete genes coding for the α -factor pheromone," <i>Nucleic Acids Research</i> 11(12):4049-63 (1983)
15	Slepak, Vladlen Z. et al. "Mutational Analysis of G Protein α Subunit $G_{0\alpha}$ Expressed in <i>Escherichia coli</i> ," <i>J. Biol. Chem.</i> 268(2):1414-23 (1993)
16	Spiegel, Allen M. et al. "The G Protein connection: molecular basis of membrane association," <i>TIBS</i> 16:338-41 (1991)
17	Steube, Klaus et al. " α -Factor-leader-directed secretion of recombinant human-insulin-like growth factor I from <i>Saccharomyces cerevisiae</i> ," <i>Eur. J. Biochem.</i> 198:651-57 (1991)
18	Stevenson, Brian J. et al. "Constitutive mutants of the Protein Kinase STE11 Activate the Yeast Pheromone Response Pathway in the Absence of the G Protein," <i>Genes & Development</i> 6:1293-1304 (1992)
19	Strubin, Michel and Struhl, Kevin "Yeast and Human TFIID with Altered DNA-Binding Specificity of TATA Elements," <i>Cell</i> 68:721-30 (1992)
110	Struhl, Kevin "Constitutive and Inducible <i>Saccharomyces cerevisiae</i> Promoters: Evidence for Two Distinct Molecular Mechanisms," <i>Molecular and Cellular Biol.</i> 6(11):3847-53 (1986)
111	Struhl, Kevin et al. "High-frequency transformation of yeast: Autonomous replication of hybrid DNA molecules," <i>Proc. Natl. Acad. Sci. USA</i> 76(3):1035-39 (1979)
112	Struhl, Kevin and Hill, David E. "Two Related Regulatory Sequences are Required for Maximal Induction of <i>Saccharomyces cerevisiae</i> <i>his3</i> Transcription," <i>Molecular and Cellular Biol.</i> 7(1):104-10 (1987)
113	Sullivan, Kathleen A. et al., "Identification of receptor contact site involved in receptor-G protein coupling," <i>Nature</i> 330:758-60 (1987)
114	Suzuki, Takeshi et al. "HTLV-1 Tax protein interacts with cyclin-dependent kinase inhibitor p16 ^{INK4A} and counteracts its inhibitory activity towards CDK4," <i>The EMBO J.</i> 15(7):1607-14 (1996)

Examiner	Date Considered
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	



APPLICANT FACSIMILE OF FORM PTO-1449 REV 7-80	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY DOCKET NO CPI-012C8US	SERIAL NO. 09/581,861
LIST OF PUBLICATIONS CITED BY APPLICANT (Use several sheets if necessary)		APPLICANT James R. Broach et al.	
		FILING DATE June 19, 2000	GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

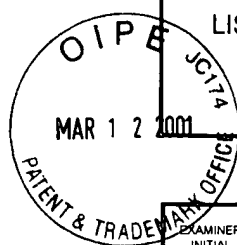
DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO

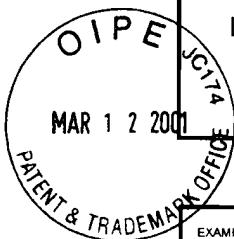
OTHERS (including Author, Title, Date, Pertinent Pages, Etc.)

J1	Teem, John L. et al. "Identification of Revertants for the Cystic Fibrosis $\Delta F508$ Mutation Using STE6-CFTR Chimeras in Yeast," <i>Cell</i> 73:335-346 (1993)
J2	Thomas, Thomas C. et al. "G-protein α_0 subunit: Mutation of conserved cysteines identifies a subunit contact surface and alters GDP affinity," <i>Proc. Natl. Acad. Sci. USA</i> 90:10295-99 (1993)
J3	Tyson, John J. et al. "Chemical kinetic theory: understanding cell-cycle regulation," <i>Trends In Biochem. Sci.</i> 21:89-96 (1996)
J4	Walker, John E. et al. "Distantly related sequences in the α - and β -subunits of ATP synthase, myosin, kinases and other ATP-requiring enzymes and a common nucleotide binding fold," <i>The EMBO J.</i> 1(8):945-51 (1982)
J5	Waters, M. Gerard et al. "Prepro- α -factor Has a Cleavable Signal Sequence," <i>J. Biol. Chem.</i> 263(13):6209-14 (1988)
J6	Whiteway, Malcolm S. et al. "Association of the Yeast Pheromone Response G Protein $\beta\gamma$ Subunits with the MAP Kinase Scaffold Ste5p," <i>Science</i> 269:1572-1575 (1995)
J7	Whiteway, Malcolm et al. "Dominant negative selection of heterologous genes: Isolation of <i>Candida albicans</i> genes that interfere with <i>Saccharomyces cerevisiae</i> mating factor-induced cell cycle arrest," <i>Proc. Natl. Acad. Sci. USA</i> 89:9410-14 (1992)
J8	Whiteway, Malcolm et al. "Genetic Identification of Residues Involved in Association of α and β G-Protein Subunits," <i>Molecular and Cellular Biol.</i> 14(5):3223-3229 (1994)
J9	Whiteway, Malcolm et al. "The STE4 and STE18 Genes of Yeast Encode Potential β and γ Subunits of the Mating Factor Receptor-Coupled G Protein," <i>Cell</i> 56:467-477 (1989)
J10	Wolowiec, D. et al. "Expression of cell cycle regulatory proteins in chronic lymphocytic leukemias. Comparison with non-Hodgkin's lymphomas and non-neoplastic lymphoid tissue," <i>Leukemia</i> 9:1382-88 (1995)
J11	Xiong, Y. et al. "Alteration of Cell Cycle Kinase Complexes in Human Papillomavirus E6- and E7-Expressing Fibroblasts Precedes Neoplastic Transformation," <i>J. Virology</i> 70(2):999-1008 (1996)
J12	Xiong, Yue et al. "Human D-Type Cyclin," <i>Cell</i> 65:691-99 (1991)
J13	Zervos, Antonis S. et al. "Mxi1, a Protein that Specifically Interacts with Max to Bind Myc-Max Recognition Sites," <i>Cell</i> 72:223-32 (1993)
J14	Zhan, Xiao-Li et al. "Differential regulation of FUS3 MAP kinase by tyrosine-specific phosphatases PTP2/PTP3 and dual-specificity phosphatase MSG5 in <i>Saccharomyces cerevisiae</i> ," <i>Genes & Development</i> 11:1690-1702 (1997)

Examiner	Date Considered
----------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.





EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

[illegible]

	K1		Medici, R. et al. "Efficient signal transduction by a chimeric yeast-mammalian G protein α subunit Gpa1-Gsα covalently fused to the yeast receptor Ste2," <i>EMBO</i> 16:7241-7249 (1997)
Examiner			Date Considered
*EXAMINER:			Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.